REMARKS

STATUS OF THE CLAIMS:

Claims 1 to 40 were cancelled.

New Claims 41 to 60 were added.

Claims 41 to 60 are pending.

Support for new Claims 41 to 60, in general, may be found in Claims 21 to 40 as well as the support for these claims proved in Applicant's November 16, 2006 Preliminary Amendment. Specific support for new Claims 51 and 52 may be found in the paragraph beginning on page 15, line 3, on pages 142 and Example 3. No new matter has been added.

I. Miscellaneous

a. Public Access to ATCC Deposit No. PTA-5898

Applicant's representative hereby gives the following assurance by signature below:

Bristol-Myers Squibb Company, an assignee of the present application, has deposited biological material under the terms of the Budapest Treaty on the International Recognition of the Deposit of Micro-organisms for the Purposes of Patent Procedure with the following International Depository Authority: American Type Culture Collection (ATCC), 10801 University Boulevard, Manassas, Virginia 20110-2209. This deposit comprises the cDNA sequence of the HBMYP2X7V AD3 clone that encodes the HBMYP2X7v polypeptide of the present invention. The deposit for HBMYP2X7v was made on April 2nd, 2004, and given ATCC Accession Number PTA-5898. In accordance with MPEP 2410.01 and 37 C.F.R. § 1.808, assurance is hereby given that all restrictions on the availability to the public of ATCC Accession Number PTA-5898 will be irrevocably removed upon the grant of a patent based on the captioned application, except as permitted under 37 C.F.R. § 1.808(b).

A copy of the ATCC Deposit receipt for Accession Number PTA-5898 was provided with Applicant's November 16, 2006 Preliminary Amendment.

II. Rejections under 35 U.S.C. § 112, Second Paragraph

a. The Examiner has rejected Claim 38 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More particularly, the Examiner alleges:

> Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 38 recites the isolated nucleic acid molecule of claim 38. Although this is clearly a typographical error, as written it is not possible to determine which claim should have been recited. Therefore, the skilled artisan is not apprised of the metes and bounds of the claim.

Applicants respectfully disagree and assert one skilled in the art would readily recognize that the phrase "nucleic acid molecule" and "polynucleotide" are synonymous. However, in the sole interest of facilitating prosecution, Applicants have cancelled Claims 21 to 40 to substitute

the "isolated polynucleotide" phrase with the phrase "isolated nucleic acid molecule" in each instance in order to maintain proper antecedent basis and to place the claims in better condition for issuance. Applicants believe the Examiner's rejection of Claim 38 under 35 U.S.C. § 112, second paragraph has been overcome in consideration of Applicant's amendment and respectfully request the rejection be withdrawn.

III. Rejections under 35 U.S.C. § 112, First Paragraph

a. The Examiner has rejected Claim 35 under 35 U.S.C. § 112, first paragraph, alleging that these claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. More particularly, the Examiner alleges

> ...The invention employs novel biological materials, specifically the cDNA clone contained in plasmid HBMYP2X7V AD3 in ATCC Deposit No. PTA-5898. Since the biological materials are essential to the claimed invention, they must be obtainable by a repeatable method set forth in the specification or otherwise readily available to the public. It is noted that Applicants have deposited the biological material under the terms of the Budapest Treaty. Applicants' referral to said deposit on pages 2,13, and 14 of the specification is an insufficient assurance that all of the conditions of 37 CFR sections 1.801 through 1.809 have been met...

In response, Applicant's representative has provided the required assurance in the "Miscellaneous" section of Applicant's Reply *supra*. Applicants believe the Examiners rejection of Claim 35 has been overcome in consideration of Applicant's assurances provided herein.

IV. Rejections under 35 U.S.C. § 112, First Paragraph

a. The Examiner has rejected Claims 31 and 32 under 35 U.S.C. § 112, first paragraph, alleging that this claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention. More particularly, the Examiner alleges:

> The claims are drawn to a genus of polynucleotides having 95% sequence identity to a polynucleotide encoding a polypeptide comprising amino acids 1-506 or 2-506 of SEQ ID NO:2 or a polynucleotide that encodes a polypeptide that is 95% identical to SEQ ID NO:2. To provide evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the polypeptide of SEQ ID NO:2 is identified as being related to P2X7, but the specification does not establish that the newly described polypeptide has any activity associated with P2X7. Therefore, the specification does not identify a function for the recited polypeptide. Thus the only identifying factor present in the claims for either the variant polynucleotides of claim 31 or the variant polypeptides recited in claim 32, which in turn are required to describe the claimed polynucleotides, is a partial structure in the form of a recitation of percent identity. There is not even identification of any particular portion of the structure that must be conserved. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Applicants disagree with the Examiner's allegation and assert that one skilled in the art would recognize Applicants were in possession of the polynucleotide sequences encompassed by Claims 31 and 32 based upon the teachings of the instant specification. Applicants point out that the instant specification explicitly discloses a significant number of sequences that are encompassed by the "at least 95.0%" limitation of these claims. Specifically, the instant specification explicitly discloses all N- and C-terminal deletion mutants of the HBMYP2X7v polypeptide, their encoding polynucleotides (see pages 29 to 33), in addition to providing explicit teachings as to how one skilled in the art could actually make these mutants (see Example 11). Applicant's specification explicitly discloses over 52 individual species embraced by Claims 31 and 32 (481 amino acids divided by 506 amino acids x 100 = 95%; 26 N-terminal and 26 C-terminal deletion mutants have at least 481 amino acids and are at least 95% identical to amino acids 1 to 506), and at explicitly discloses over 54 individual species embraced by Claims 31 and 32 (480 amino acids divided by 505 amino acids x 100 = 95%; 27 N-terminal and 27 C-terminal deletion mutants have at least 480 amino acids and are at least 95% identical to amino acids 2 to 506). Accordingly, Applicants assert that the instant specification does provide sufficient teachings to convince a skilled artisan that Applicants were in possession of the claimed genus.

In addition, Applicants disagree with the Examiner's allegation that the specification "does not identify a function for the recited polypeptide". Applicants remind the Examiner that one of the utilities for the HBMYP2X7v polynucleotides is for use in methods of diagnosing Alzheimer's disease (see Figure 7 and page 8). Consequently, it is well established in the art that fragments of a polynucleotide sequence, in addition to sequences having less than 100% identity, can be used as probes for identifying and quantifying expression levels of a polypeptide and its encoding mRNA in any given sample. As noted *supra*, Applicant's specification explicitly discloses fragments of HBMYP2X7v that are encompassed by the "at least 95.0%" limitation of Claims 31 and 32. Furthermore, the oligonucleotides directed to the HBMYP2X7v polynucleotide originally used to associate HBMYP2X7v to Alzheimer's disease were only 24 to 25 nucleotides in length (see Example 3; and SEQ ID NOS:16 and 17, respectively). Clearly, the skilled artisan would recognize that a fragment over 19 times this length (e.g., 480 amino acids in length) would be useful in measuring the expression levels of the HBMYP2X7v polynucleotide, and hence useful for diagnosing Alzheimer's disease. One skilled in the art would also clearly recognize that a sequence having five or less nucleotide changes out of 100 nucleotides, on average, would also be useful as probes for identifying and quantifying expression levels of a polypeptide and its encoding mRNA in any given sample since such changes would not be expected to affect the ability of such sequences to hybridize to SEQ ID NO:1.

Applicants also disagree with the Examiners allegation that a functional limitation or any particular conserved structure is required to be recited in the claims since, as discussed *supra*, one skilled in the art would know how to make and use the invention for its use in diagnosing Alzheimer's disease and the fact that such a use is not dependent upon the functional activity of the HBMYP2X7v polypeptide. However, in the sole interest of facilitating prosecution, Applicants have cancelled Claims 31 and 32 and replaced them with new Claims 51 and 52. New Claims 51 and 52 contain the additional limitation ", wherein said isolated nucleic acid molecule specifically hybridizes under stringent conditions to SEQ ID NO:1, and wherein said stringent conditions are at least as stringent as an overnight incubation at 42 degree C in a solution comprising 50% formamide, 5x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 μg/ml

denatured, sheared salmon sperm DNA, followed by washing the filters in 0.1x SSC at about 65 degree C".

Applicants believe the Examiners rejection of Claims 31 and 32 under 35 U.S.C. § 112, first paragraph, has been rendered moot in consideration of Applicant's cancellation of these claims, and overcome in consideration of Applications replacing this claim with new claims that obviate the Examiner's rejection.

b. The Examiner has rejected Claims 33 and 34 under 35 U.S.C. § 112, first paragraph, alleging that these claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention. More particularly, the Examiner alleges:

> The specification as filed does not have literal support for the genus of all polypeptides that comprise at least 302 contiguous amino acids of SEQ ID NO:2, nor for all polynucleotides that comprise at least 906 contiguous nucleotides of SEQ ID NO: 1. The specification only makes a general teaching of any combination of both N- and C-terminal HBMYP2X7v polypeptide deletions of SEQ ID NO:2" in the paragraph bridging pages 33-34. The only contemplated species of polypeptides that comprise precisely 302 contiguous amino acids of SEQ ID NO:2 are T205-Y506 and M1-I302, on pages 30 and 32, respectively. While many longer polypeptides are also contemplated, the limitation "at least 302 contiguous amino acids" is never mentioned.

Applicants disagree and assert that the instant specification does provide support for a nucleic acid sequence encoding at "least 302 contiguous amino acids of SEQ ID NO:2", and thus a nucleic acid sequence that is "at least 906 contiguous nucleotides of SEQ ID NO:1" as well. First, Applicants point out that there is no requirement that every species encompassed by a genus be explicitly disclosed in the specification. Rather, only a representative number of is required. Applicants assert the explicit disclosure of over 410 individual species (205 N-terminal deletion mutants and 205 C-terminal deletion mutants disclosed on pages 29 to 33) that encode a polypeptide "at least 302 contiguous amino acids of SEQ ID NO:2" or that is "at least 906 contiguous nucleotides of SEQ ID NO:1" is sufficient to constitute a representative number of species for the claimed genus.

Secondly, Applicants also point out that there is no requirement for a limitation to be explicitly supported word-for-word in the specification in order for the written description requirement to be satisfied. Rather, the M.P.E.P. states that claim limitations may be supported in the specification through "express, implicit, or inherent disclosure..." and that "there is no *in haec verba* requirement" (see M.P.E.P. 2163(I)(B))(emphasis added). According to the M.P.E.P., whether the written description requirement is met turns on whether "...a skilled artisan would have understood the inventor to be in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification...See, e.g., Vas-Cath, 935 F.2d at 1563, 19 USPQ2d at 1116; Martin v. Johnson, 454 F.2d 746, 751, USPQ 391, 395 (CCPA 1972)(stating "the description need not be in *ipsis verbis* [i.e., "in the same words"] to be sufficient"). (see M.P.E.P. 2163(II)(A)(3)(a))(emphasis added). Accordingly, Applicants assert that one skilled in the art would recognize that the specification supports the phrase "at least 302 contiguous amino acids of SEQ ID NO:2" based upon the disclosure of various species that define this genus. Applicants believe the Examiner's rejection of Claims 31 and 32 under 35 U.S.C. § 112, first paragraph, has been overcome in consideration of Applicant's arguments and respectfully request that the Examiner withdraw the rejection.

Applicants believe all of the rejections and objections have been overcome and that all of the pending claims before the Examiner are in condition for allowance. An early Office Action to that effect is, therefore, earnestly solicited.

If any fee is due in connection herewith not already accounted for, please charge such fee to Deposit Account No. 19-3880 of the undersigned. Furthermore, if any extension of time not already accounted for is required, such extension is hereby petitioned for, and it is requested that any fee due for said extension be charged to the above-stated Deposit Account.

Respectfully submitted,

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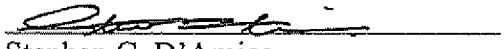

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